```
phot pandas as po printend i consequent as as some of the
impost mathlotlib . hyplot as plt
                                          Ht. Xlobel ( (ountry))
 inopost Seaborn as sos
                                      hte plabel (can Distance)
 from scipy cluster · hierarchy import linkage, dendrogram, polities
 from Sklearn . hreprocessing import Standard Scalor and and
# Sample data: Replace with real - world data as needed
 of [cluster] = (cluster (linked , t=3 , cotterine (maxclust) } = pb
   (Country): ['USA), (Canada), 'Grenmany', (France), (India), Ching, (Brazil)
             "Russia"]
                             1 CC (Country) (cluster) [18)
 (GDP Pex Capita): [63000, 46000, 48000, 41000, 2100, 12000, 8800, 11400]
(Inflation Rate': [2.3,1.5,1.4,1.8, 5.5,2.1,4.2,3.4],
(Unemployment Rate : [5-2,6.0,4.5,8.0,7.1,5.0,9.8,4.8] }
  d= hd. Data Frome (data)
  X = df [['GOP per Capita', 'Inflation Rate', 'Unemployment Rate']]
  # Standoodize features (impostant for distance metrics)
   Scales = Standard Scales()
   X_scaled = scalex - fit_transform (x)
 # Perform heiranchical clustering using Wood's method
   linked = linkage (x-scaled, method = (word))
   # Plot dendrogram
   hlt. Ligure (Ligsize=(10,6))
  dendrogram (linked, labels = of (Country)]. values, orientation = (top),
    distance _Sort = 'descending', show _leaf -counts = True)
```

plt. title (Dendrogram: Country Clustering Based on Economic indicators) htt. Xlobel ( country) inchest seakoon as sos plt. ylabel (com Distance)) hit tight layout ) spiral trapar phonosid . retails palis mos hlt. shows . hrepmaussing infinit Standard Sentin . Owods . Ild # optional : essign clusters - how the solder to allow the of ['cluster'] = { cluster (linked , t=3 , criterian = 'maxclust') # Display clustered data promosed ( abones) ( ASU) ? ( votros) hoint (of CC'Country', cluster']]3) (90P Per Capita); [63000, 416000, 48000, 2100, 12000, ( of lotter Pate': [2-3, 105, 164, 168, 55, 201, 4.2, 3.4] Superphyment Role: [5-2, 5.0, 4.5, 8.0, 7.1, 5.0, 9.8, 4.3] d= hd. Data Frome (data) X = 9P (T. CUBB hex Colites), explosion 40p, 2, now placed to It standardize (enturies (infrastant for distance metalics) Scoler = Standord Scoler() Y-3coled = Scaler of the transflown (x) # Postoro heirandical clustering using hand's method ( laked = linkage (x-scaled, method = wood) the Plat dendrogon

((d, o)) = 3518 6/1 DENDY + 1/1







